

REMARKS / ARGUMENTS

Remarks Regarding Response to Amendment

Applicant acknowledges that the Examiner has accepted the amendments made to claims 2, 3, 7, 10, 11, 15, 16 and 18 in the February 24, 2006 communication.

Remarks Regarding Terminal Disclaimer

Applicant acknowledges that the terminal disclaimer filed on February 24, 2006 has been reviewed, accepted and recorded.

Remarks Regarding Claim Objections

The Examiner objected to Claims 1, 6, 9 and 14 because of certain informalities. The Applicant has amended Claims 1, 6 and 9 to as proposed by the Examiner. Claim 14 has been canceled from the application.

Remarks Regarding Claims Rejected Under 35 USC §112

The Examiner has rejected claims 5, 6, 12 and 17 under 35 U.S.C. §112, second paragraph.

The Examiner states that Claims 5, 6, 12 and 17 are rejected for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner states that it is unclear as to whether the platinum to rhenium ratio is the molar ratio or the weight ratio.

Applicant has amended Claims 5, 6 and 12 to include that the ratio is expressed as a relative weight ratio. The basis for these amendments can be found in the specification at page 5, line 21. It is Applicant's belief that this amendment does not add new matter to the Claims. Claim 17 has been canceled from the application.

Other Amendments to Claims

Claims 1 and 9 have been amended to more specifically state that the titania support of the catalyst consists essentially of the anatase crystal structure and is doped with lanthanum oxide, not that the anatase merely comprises a majority of the titania support structure and that lanthanum oxide is supported on the titania. Claim 7 has been amended to more specifically state that the additives listed are added to the titania support, not supported on the titania. The bases

for these amendments are found in the specification at page 5, lines 17 -- 20, and page 6, lines 6 -- 7, and page 6, line 22 -- page 7, line 2, and page 7, lines 15 -- 16, and Example 1.

Claims 1 -- 13 remain in the application. Claims 14 -- 19 have been canceled from the application.

Summary of the Present Invention

The present invention is a catalyst for use in the water-gas-shift reaction. The catalyst comprises platinum, rhenium and lanthanum on a titanium dioxide carrier that consists essentially of the anatase crystal structure and that is doped with lanthanum oxide. The total weight percent of the active metals -- platinum and rhenium -- is about 20 wt%. The platinum and rhenium preferably have a relative weight ratio of from about 1 Pt : 0.9 Re to about 5 Pt : 1 Re. The lanthanum is preferably present at a concentration of up to about 20 wt%. Optionally, cerium, zirconium, tungsten or a combination thereof may be added to the carrier to improve the stability of the catalyst. The catalyst of the present invention is more resistant to CO poisoning and more stable than the prior art catalysts.

Remarks Regarding Claims Rejected Under 35 USC §§102(b) and (e) and 35 USC §103

The Examiner has rejected Claims 1, 7, 9, 14, and 18 under 35 U.S.C. §102(e) as anticipated by Chetouf (US 2004/0179995 A1, "the '995 application"). The Examiner has rejected Claims 1, 2, 7 -- 10, 13 -- 15 and 18 -- 19 under 35 U.S.C. §102(e) as anticipated by Speer (U.S. Patent 6,315,963, "the '963 patent"). The Examiner has also rejected Claims 3 -- 6, 11, 12, 16 and 17 under 35 U.S.C. §103 as being obvious in view of Speer (U.S. Patent 6,315,963, "the '963 patent").

The '995 application teaches a catalyst carrier comprising a purified titania. The titania support may be used to prepare catalysts suitable for the preparation of hydrocarbons from synthesis gas. "The catalytically active metal is preferably supported on a porous carrier, especially titania as prepared according to the process of the ['995] invention." (Paragraph 0025) The '995 application further teaches that lanthanum oxide may be used in the catalyst as a promoter. "The catalytically active metal and the promoter, if present, may be deposited on the carrier material by any suitable treatment ..." (Paragraph 0028)

The present invention requires that the anatase titania support be doped with lanthanum, whereas the '995 application teaches that the support is a purified titania. Further, in the '995 application, lanthanum oxide may be added as a promoter on the titania support, whereas in the present invention, the claims require that the lanthanum oxide is part of the support.

The '963 patent teaches a photocatalytic device that has a substrate of glass, polymeric or ceramic composition containing micropores, channels or conduits. The substrate may be coated with a photocatalyst, such as a photocatalyst comprising titania, platinum, cerium and lanthanum. The '963 patent does not teach or suggest that the substrate could comprise titania or a lanthanum-doped titania, or that the platinum, cerium or other metals could be supported on the titania or on a lanthanum-doped titania.

The present invention requires that platinum and rhenium be supported on an anatase titania support doped with lanthanum, whereas the '963 patent teaches that the catalyst is a combination of titania, platinum, cerium and lanthanum.

Thus, independent Claims 1 and 9, and their dependent claims, Claims 2 - 8 and Claims 10 - 13, respectively, are not anticipated by nor obvious in view of Chetoui (US 2004/0179995 A1) nor in view of Speer (U.S. Patent 6,315,963).

Remarks Regarding Applicants' Arguments

Applicant has made note of the Examiner's comments regarding Applicant's February 24, 2006 communication.

Remarks Regarding Allowable Subject Matter

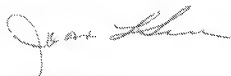
The Examiner has not indicated that any claims would be allowable if rewritten.

Remarks Regarding Citations

Applicant has made note of the prior art recited by the Examiner in the Notice of References Cited.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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